cerning ground-water appropriations by the State Division of Water Resources, reports of U.S. Public Health Service, and some direct information from municipal and industrial consumers. The total annual ground-water withdrawal for all uses in the Yakima River basin was estimated to be about 52,000 acre-feet per year in 1953, and little change has taken place since then.

TABLE 4.—*Estimated annual ground-water withdrawals, in acre-feet, in the ground-water subbasins of the Yakima River basin, 1953*

Subbasin	Irrigation	Industrial	Municipal supply	Domestic	Total
Ahtanum-Moxee	10,000	7,500	2,000	1,500	21,000
Black Rock	50	0	0	20	70
Bumping Lake	0	0	0	0	0
Cle Elum	500	200	0	200	900
Dry Creek	0	0	0	0	0
Ellensburg	1,000	500	2,000	500	4,000
Galena	0	0	0	0	0
Horse Heaven	0	0	0	0	0
Kachess	0	0	0	25	25
Keechelus	0	0	0	25	25
Lower Teanaway	150	0	0	25	175
Lower Wenas	5,000	100	0	200	5,300
Manastash	0	0	0	25	25
Naches-Cowiche	1,000	200	700	500	2,400
Prosser	2,000	1,000	1,500	1,000	5,500
Rattlesnake	0	0	0	25	25
Richland [1]	100	0	0	25	125
Roza	500	100	100	200	900
Selah	0	0	0	25	25
Taneum	1,500	5,000	1,500	1,000	9,000
Toppenish	0	0	0	0	0
Umtanum	1,600	0	0	20	1,620
Upper Ahtanum	0	0	0	0	0
Upper Teanaway	500	0	0	50	550
Upper Wenas					
Total	23,900	14,600	7,800	5,365	51,665

[1] Large part of this subbasin lies within the Hanford AEC Reservation. Utilization of ground water in this area is not known.

STORAGE RESERVOIRS

There are five major and two minor reservoirs in the Yakima River basin. The major reservoirs, Keechelus, Kachees, Cle Elum, and Bumping Lakes, and Tieton Reservoir together have sufficient capacity to store about 62 percent of the average annual runoff of the tributary areas. Table 5 shows the location, capacity, purpose, and other pertinent data regarding these reservoirs.

Adequate records of water-surface elevations and operations of these reservoirs have been maintained since regulation began. Such data are published by the U.S. Geological Survey, or are available in the files or reports of the U.S. Bureau of Reclamation, Yakima.

The two minor reservoirs listed in table 5, Clear Creek and Wenas, have a negligible effect on the regimen of the basin. No records have been published on their elevations or contents.

ble storage capacities of 854,000 acre-feet, store water for irriga-
ı downstream.

rrigation in the Kittitas basin has increased from 27,800 acres in
0 to 75,000 acres in 1955 (table 1). The greatest increase came im-
liately after the construction of the Kittitas High Line Canal in
0, which now irrigates 54,000 acres. The remainder of the area is
ved by numerous small ditches, the Cascade and the Ellensburg
ıter Co. canals, all diverting from the Yakima River. The Ellens-
:g power canal diverts about 700 cfs in the vicinity of Ellensburg,
ich is returned a short distance below point of diversion. There
ıo storage in this area.

The irrigated area in the Upper Yakima basin has increased from
,500 acres in 1900 to 86,000 acres in 1955. Many canals divert water
: use within this basin, and several canals divert water for use in
ə Lower Yakima basin.

The irrigated area in the Lower Yakima basin has increased from
out 18,000 acres in 1900 to about 264,000 acres in 1955. About
,000 acres are irrigated in the Cold Creek basin, mainly from the
iona and Columbia Canals. The Richland Canal, formerly irrigat-
g 10,500 acres, now serves as the municipal supply for Richland.
ost of the flow of the Columbia Canal is used in the vicinity of
ennewick, outside the Yakima River basin.

Table 1 indicates a decrease of irrigated acreage in the upper part
: the basin between 1946 and 1955. This is due to a slackening of
ıe pressure of the war and postwar demands that had allowed margin-
land to be brought under cultivation. By 1955, this demand had
ecreased until the farming of marginal lands was no longer profit-
ble. The increase in irrigated acreage in the lower part of the basin
; the result of extensions of Rosa and Sunnyside Canals.

TABLE 1.—*Land area under irrigation in the Yakima River basin for selected years*

[Areas given in acres. Adapted from Simons, 1954]

Year	Kittitas basin	Upper Yakima basin	Lower Yakima basin	Total
900	27, 800	21, 500	18, 150	67, 450
910	49, 860	53, 900	80, 530	197, 280
920	54, 320	86, 800	164, 250	322, 490
930	59, 810	88, 500	179, 770	345, 320
940	110, 100	90, 180	194, 860	412, 700
946	104, 640	93, 870	225, 920	439, 300
955[1]	75, 000	86, 000	264, 000	425, 000

[1] Figures for 1955 from W. D. Simons, oral communication, March 1959.